NOTE ON A CROSS MATING BETWEEN TWO SUBSPECIES OF TROPISTERNUS LATERALIS (FABR.) (COLEOPTERA: HYDROPHILIDAE)[1]

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The *Tropisternus lateralis* (Fabricius) complex ranges from British Columbia and Quebec to Argentina. At least five color varieties are known (Leech, 1948). These differ primarily in shape and degree of pigmentation. Several of the color variants have been named and are usually considered to be subspecies, but the actual taxonomic status has frequently been questioned. An investigation of the factors controlling the degree of pigmentation in *Tropisternus* led to results which settle the issue for two subspecies of the complex.

Living adults of *Tropisternus lateralis nimbatus* (Say) were collected at Martinsville, Indiana, in October, 1959, by Dr. Frank Young. This subspecies of *lateralis* ranges from Quebec and Ontario to Florida and westward to Nebraska and Colorado. The dark, metallic green insect has yellow margins which are very narrow and regular on the pronotum and elytra. The strain from Martinsville was maintained in the laboratory through five generations by the methods outlined by Young (1958).

Living specimens of another subspecies, *T. l. binotatus* (Walker), were obtained from Lake Lenore, Washington, by Mr. David Miller, in May, 1960. This subspecies ranges from British Columbia and Alberta, southward through the western United States to Mexico and possibly to South America. It is larger and more robust than *T. l. nimbatus,* and the broad yellow margins of the elytra extend across the elytral bases to the scutellum and sometimes almost meet at the elytral apices.

The conditions necessary for the maintenance of *T. l. binotatus* in the laboratory could not be precisely determined, and the strain was lost after one generation. Mating of the adult beetles was observed in several instances, however, and fertile eggs were laid. The larval mortality rate was very high, possibly due to improper feeding, and the few F_1 adult *binotatus* obtained were small compared to their parents. None survived to reproduce.

An attempt to cross the two subspecies was successful. Reared virgin females of *T. l. nimbatus* were mated with males of *T. l. binotatus*. Mating was readily accomplished, and the females of *nimbatus* apparently responded to males of *binotatus* as readily as to males of their own subspecies.

Three successful cross matings were obtained. These cross mated females of *nimbatus* constructed 10 egg cases containing a total of 54 eggs. The eggs hatched 4 days after laying. Of the 54 larvae, 48 survived the first molt which occurred 2-4 days after hatching. Eleven more larvae died before the second molt which occurred 5-10 days after the first. Another thirteen larvae died after the second molt and without pupating. Many of these deaths may be due to a failure to provide proper conditions for pupation. Pupation occurred 26-38 days after hatching. Twenty-four adults emerged 5-7 days following pupation. No attempt was made to obtain an F_2 generation of the cross, but the adults seemed hardy and all survived for several weeks.

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[1] Contribution No. 713 from the Zoological Laboratories of Indiana University, aided by a grant from the U. S. Public Health Service.

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No clearcut ratios were evident from the distribution of color patterns in the F_1. All specimens showed a wider, more ragged yellow margin than normally found in *T. l. nimbatus,* but only a few showed the extension of the yellow margin across the bases of the elytra normally found in *T. l. binotatus.*

The reciprocal cross could not be made because no females of *T. l. binotatus* which were known to be unmated were available, and the experiment was discontinued when the laboratory strain of *binotatus* was lost.

The fact that *T. l. nimbatus* and *T. l. binotatus* will interbreed confirms their close relationship. It is hoped that conditions suitable for rearing *T. l. binotatus* will be found so that the question of pattern determination may be investigated further.

LITERATURE CITED

LEECH, HUGH B.
1948. Contributions toward a knowledge of the insect fauna of Lower California. No. 11. Coleoptera: Haliplidae, Dytiscidae, Gyrinidae, Hydrophilidae, Limnebiidae. Proc. Calif. Acad. Sci. 24:375-484, 2 pls.

YOUNG, FRANK N.
1958. Notes on the care and rearing of *Tropisternus* in the laboratory (Coleoptera: Hydrophilidae). Ecology 39:166-167.

NOTICE

The List of Insects of Michigan is nearing completion. Volunteers are needed to identify specimens and read the manuscript for correct scientific names in the families listed below. Those interested should contact R. R. Dreisbach, 301 Helen Street, Midland, Michigan.

Anisotomidae
Byrrhidae
Cisidae
Colydiidae
Cryptophagidae
Cucujidae
Dascillidae
Dermestidae
Dryopidae
Dytiscidae
Endomychidae
Euglenidae
Helodidae
Hydrophilidae
Lagriidae
Lathridiidae
Malachidae
Melasidae
Melyridae
Mycetophagidae
Nitidulidae
Orthoperidae
Ostomidae
Phalacridae
Ptilodactylidae
Pyrochroidae
Pythidae
Rhizophagidae
Sandalidae
Scydmaenidae
Throscidae